NORTON SOUND AREA COMMERCIAL AND SUBSISTENCE SALMON FISHERIES MANAGEMENT PLAN 1989

By Charles Lean

and

Sue Merkouris

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[1] The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accomodate needs for up-to-date information, reports in this series may contain preliminary data.

Introduction

The Norton Sound area extends from Cape Douglas south to Canal Point Light and includes over 500 miles of coastline (Figure 1). This area is divided into six subdistricts. Each subdistrict contains at least one major spawning stream with commercial fishing effort located in the ocean near stream mouths.

All five species of Pacific salmon occur in the area. Prior to 1985, pink salmon was the most abundant species. Since the record return of pink salmon in 1984, even year returns have declined slightly while odd year returns have declined drastically. In recent years, chum salmon have been the most abundant species, followed by coho, pink, and chinook salmon. Sockeye salmon occur only rarely and are in low abundance.

Staffing for management and research within Norton Sound includes two management biologists, one clerk-typist and four seasonal employees during the summer months. Anticipated management and research projects in 1989 include: Kwiniuk River counting tower, periodic aerial surveys of index spawning streams, catch sampling and monitoring efforts at Unalakleet and Moses Point and test fishing on the main stem Unalakleet River.

Status of Stocks and Fisheries

Commercial fishing began in 1961 in the Unalakleet and Shaktoolik subdistricts; 1962 in the Golovin, Moses Point, and Norton Bay subdistricts; and in 1964 in the Nome subdistrict.

The 1988 commercial catch of 225,166 salmon of all species included 4,096 chinook, 1,252 sockeye, 37,247 coho, 74,604 pink and 107,967 chum salmon. The chinook harvest was 60% and 56% below the 1983-1987 and 1978-1987 averages, respectively. The sockeye harvest was the highest on record. The coho harvest was the fourth highest on record, however was slightly below both the 1983-1987 and 1978-1987 averages. Strong coho salmon returns to the Norton Sound District, especially from 1982-1984, have increased recent year "average harvests" dramatically. The pink harvest was 53% above the 1983-1987 average, but 48% below the 1978-1987 average. The chum harvest was 37% below both the 1983-1987 and 1978-1987 averages. Historical catch data for the Norton Sound district is presented in Table 1.

During the 1988 season, 152 fishermen made at least one delivery; this effort was slightly below the recent 5 year average (1983-1987) of 159 fishermen.

The cold temperatures and relatively small amounts of snowfall during the winters of 1981-1982 and 1983-1984 apparently

contributed to the emergence of an odd-even year cycle of pink salmon returns. The past three odd year returns were well below the returns experienced during the 1978-1984 period. Even year returns were at high levels during the same time period; however, even with a record pink salmon return in 1984, the resultant 1986 return was well below the 5 year (1981-1985) and 10 year (1976-1985) averages.

The pink salmon market in Norton Sound has historically been very sporadic; therefore, catch statistics do not accurately reflect actual return strengths for this species from year to year. However, fishing effort and salmon markets have been fairly consistent in the Eastern Norton Sound subdistricts for over ten years. Thus, catch statistics, especially in the Unalakleet subdistrict, represent annual return strengths of chinook, coho, and chum salmon with fair accuracy.

Commercial fishermen received approximately $754,751 for their catch in 1988. These earnings ranked as the seventh highest since the commercial fishery was initiated in 1961, and was 4% above the 1983-1987 average. This relatively high dollar value was attributed to strong salmon prices. Prices paid to the fishermen averaged $1.26 per pound for chinook, $1.16 per pound for sockeye, $1.13 per pound for coho, $0.19 per pound for pink, and $0.39 per pound for chum salmon. Both chinook and coho salmon prices paid were the highest on record; the chum salmon price was the second highest on record ($0.41 in 1979); the pink salmon price was 23% higher than the 1983-1987 average price of $0.15 per pound.

Outlook for 1989

Insufficient data are available to enable reliable forecasting methods to be employed in Norton Sound. The 1989 "outlook" is based upon analysis of comparative escapement and commercial catch information, age data, and "subjective determinations". This outlook is presented only as an indicator of possible 1989 return strength.

The chinook salmon return will be determined by the 1983 and 1984 brood years. The 1983 commercial harvest was above average, while the 1984 catch was below average. Escapements for both years were similar. The chinook salmon return during 1989 is expected to be near average, providing a commercial harvest of 8,000 to 11,000 fish.

The 1989 pink salmon return will be the progeny of the 1987 brood year. Pink salmon have developed a cycle of weak returns during odd years in Norton Sound. Poor returns and corresponding low escapements are responsible for this cycle. The 1989 pink salmon return is expected to be poor, and commercial catches are not expected to exceed 5,000 fish.

The chum salmon return will be primarily produced by the 1985 return, with a small contribution from the 1984 return. Both the 1984 and 1985 brood year returns were below average. Escapements during the 1985 season generally met the goals the Department feels are needed to maintain the population. Therefore, the chum salmon return is expected to be slightly below average, and may yield a commercial harvest of 120,000 to 180,000 fish.

The 1989 coho salmon return will be produced by the 1985 brood year. The 1985 brood year was characterized by below average returns and escapements of coho salmon. A below average return of coho salmon is expected, and the commercial harvest is expected to fall between 15,000 and 30,000 fish.

General Management Strategies

Each subdistrict is managed for a commercial target species, usually chum salmon, for most of the season. In years when an exceptionally large pink salmon run occurs, additional fishing periods can be provided in which only gill nets with 4-1/2" mesh or less may be fished. These additional periods are not likely to occur during the 1989 season based on poor parent year returns during 1987.

The basic regulation that controls the commercial salmon harvest is the scheduled weekly fishing period. Once the season is underway, commercial fishing is generally allowed 4 days per week, from 6:00 p.m. Monday to 6:00 p.m. Wednesday and from 6:00 p.m. Thursday to 6:00 p.m. Saturday, with the exception of the Nome subdistrict where commercial fishing is allowed 2 days per week, from 6:00 p.m. Monday to 6:00 p.m. Tuesday and from 6:00 p.m. Thursday until 6:00 p.m. Friday.

Regulations provide for the commercial fishing season to be opened by emergency order between June 8 and June 20. However, due to late breakups during the past the 1984-1987 seasons, the commercial fishery was opened by emergency order after June 20. If breakup timing in Norton Sound is normal in 1989, and runs are not judged to be early and strong, the opening date will be approximately June 15. The season ends by regulation on August 31 in the Nome, Golovin, and Moses Point subdistricts and on September 7 in the Norton Bay, Shaktoolik, and Unalakleet subdistricts. If an early ice breakup occurs in Norton Sound, fishermen will be encouraged to relay early subsistence catch data to department representatives.

Timing and abundance of the chinook salmon run will be monitored by department personnel conducting fishermen interviews and operating test nets in the Unalakleet River. Once increasing catches have been observed for at least 7 days at the mouth of the Unalakleet River the Unalakleet and Shaktoolik fisheries will

be opened by emergency order.

Norton Bay, Moses Point and Golovin subdistricts are managed initially for chum salmon and are not opened to fishing until chums are observed entering freshwater in those districts. The Nome Subdistrict opens by regulation after July 1. Initial fishing periods may be only 24 hours in duration in all but the Nome subdistrict, until additional run strength and timing information indicates the migration has normal volume. Fishing periods will not exceed 24 hours in the Nome subdistrict.

Adjustments in fishing time will be required for conservation purposes if run magnitudes are below average and fishing effort remains high. Effort, catch and escapement data will be compared with previous seasons to assess relative return strength for the current season. Action to bolster chum salmon escapements should be initiated on or before the second week of July. By that time roughly 50% of the chum return should have entered the rivers and the time left for effective management action will be limited.

Aerial surveys of index spawning streams will begin in early July and will continue through peak spawning periods in late July for chinook, chum, and pink salmon and mid-September for coho salmon. Catch and effort data from the commercial fishery will be compiled after each fishing period for each subdistrict. Counts of salmon moving past the Kwiniuk River counting tower, and the Unalakleet River test fishery catches will be radioed on a daily basis to the Nome office. Inseason commercial catch rates and various escapement projects are used as primary escapement indices. Aerial surveys usually take place late in the season after effective conservation actions could be implemented. Escapement objectives for chum salmon for selected Norton Sound index streams are presented in Table 2.

Commercial fishermen may not fish for subsistence purposes during weekly closures of the commercial fishing season. The purpose of this regulation is to minimize the illegal sale of subsistence caught salmon and insure adequate spawning escapements. Commercial fishermen may retain a portion of their commercial catch for personal use or fish for subsistence before and after the commercial fishing season. Also, persons not engaged in commercial salmon fishing as CFEC permit holders, crew members, or tender boat personnel may subsistence fish 7 days a week in all subdistricts, except the Nome subdistrict, and in the Unalakleet River. The Alaska Board of Fisheries adopted a regulation in December 1984 which became effective during the 1985 season allowing commercial fishermen to subsistence fish in the Unalakleet and Shaktoolik River drainages 7 days per week from July 15 to August 1 with beach seines and gill nets with mesh size of 4-1/2 inches or less.

An informational program will be broadcast over a Nome public radio station to inform fishermen of current regulations, catches, escapements and department activities. Also, permanent

personnel will periodically visit each fishery to disseminate fishery information and answer questions.

Special Management Strategies

Nome Subdistrict

The cumulative fishing pressure of commercial, subsistence and sport fishing on local stocks, which are less abundant than in other portions of Norton Sound, requires special management strategies. Unlike other subdistricts, nearly all the spawning streams are accessible by road to subsistence and sport fishermen. During the last five years (1983-1987), an average of 232 permits have been issued yearly for subsistence fishing in the Nome subdistrict. Reported subsistence harvests have averaged over 15,800 salmon during the past 5 years. The commercial fishery, which targets chum salmon during most years, must be managed very conservatively due to the importance of subsistence fishing, the limited abundance of local chum salmon stocks and the interception of other stocks bound for Kotzebue Sound, Port Clarence and eastern Norton Sound fisheries. Commercial catches have averaged approximately 7,092 chum salmon over the past 5 years, (1983-1987).

Chum salmon escapement objectives for the five major index streams (Nome, Eldorado, Bonanza, Flambeau and Sinuk Rivers) totals about 16,500 fish. Maintaining escapements at these levels ensures that sufficient spawning will occur to perpetuate future salmon runs. During 1983 and 1984, chum salmon escapements totaled only 5,260 and 10,089 respectively in these streams.

The Board of Fisheries, acting on a petition from the local advisory committee, directed the staff to manage the 1984 fishery so that escapement would be optimized. The Department accomplished this by using emergency orders to restrict the commercial fishery. During its 1984 winter meeting, the Board of Fisheries adopted several proposed regulatory changes submitted by the Department and the local advisory committee. The following regulations are still in effect:

Commercial Fishery:

a. The opening of the season will be delayed until July 1.

b. The fishery will be restricted to subdistrict 1 waters east of Cape Nome.

c. Fishing time will be reduced to two-24 hour periods a week.

Subsistence Fishery:

a. The first 200 yards of the Nome River will be closed to net fishing.

In addition to these regulations the commercial catch of chum salmon will be kept to 5,000 fish, the lower end of the current guideline harvest range of 5,000-15,000, unless it appears that additional harvests will not jeopardize spawning escapements.

Because of continued chum escapement problems in the Nome River, new regulations adopted during 1987 winter meeting of the Alaska Board of Fisheries will again be in effect for the 1989 season.

Sport Fishery:

a. Reduce the sport fishery bag and possession limit for chinook salmon in the Nome area waters to one salmon.

b. Reduce the non-chinook sport fishery salmon bag and possession limit in the Nome and Snake Rivers to 10, only 3 of which may be chum or coho, in combination.

Subsistence Fishery:

a. The Nome River will be closed to beach seining; gill nets will be restricted to 50 feet in length.

b. The portion of the Nome River above Osborne will be closed to net fishing (in addition to the closure of the first 200 yards on the river mouth).

These regulations have been deemed necessary because chum escapements in the Nome River have not met the escapement goal of 2,000 salmon since 1984. Peak chum salmon aerial counts were 1,868, 1,150, 1,646, and 973 fish in 1985, 1986, 1987, and 1988 respectively. Also, subsistence fishing permits will continue to be issued for 250 salmon in the Nome River and 100 salmon in the Snake River but with the provision that these harvests contain not more than 20 chum salmon and 20 coho salmon. Limiting the subsistence harvest of chum and coho salmon in these two rivers will optimize escapements of these less abundant but intensively utilized species. The Nome River will be intensively monitored by aerial and boat surveys throughout the chum salmon return in 1989 to insure the escapement goal of 2,000 is met.

Subsistence fishing permits are required in the Nome subdistrict and are available at the Nome Fish and Game office. The permit system provides data to document subsistence needs for proper regulation of the commercial fishery. Subsistence salmon fishing periods in the Nome subdistrict from June 15 through August 31 are from 6:00 p.m. Monday until 6:00 p.m. Wednesday and from 6:00 p.m. Thursday until 6:00 p.m. Saturday. Before and after these dates there are no closed periods for subsistence fishing.

If large spawning escapements occur, a relaxation of subsistence

fishing restrictions will be made (increased permit catch limits, and/or increased fishing time). Such action is not likely until after the majority of chum salmon have entered local streams for spawning, probably during second week in July. Conversely if spawning escapements are significantly below average, increased restrictions on salmon fishing may be necessary. If escapements remain low after the commercial fishery has been restricted, the sport and subsistence fisheries may also be further restricted. Permit catch limits for Nome subdistrict (also Port Clarence district) streams are presented in Table 3.

Golovin Subdistrict

A strong market during the last four years has caused high chum salmon harvests in the Golovin subdistrict. Escapement goals for chum salmon were not met during the 1988 season. During the 1989 season, harvests and escapements will be closely monitored by Department staff. Short term closures or reduced fishing time (24 hour periods) will be implemented if necessary to insure adequate escapament.

Moses Point Subdistrict

Relatively high numbers of fishermen and a strong market during the last four years has caused high harvests in the Moses Point subdistrict. Escapements during the same time period have not met the goals established to maintain local stocks. As in the Golovin subdistrict, during the 1989 season, harvest and escapements will be closely monitored, and a short term closure or reduction in fishing time may be announced if inadequate escapement is observed.

Unalakleet and Shaktoolik Subdistricts

During the chinook salmon run in late June, increased subsistence fishing effort was observed in the lower Unalakleet River in 1983 and 1984. As many as 30 nets were observed in the first mile of the river. Household subsistence surveys were conducted in Unalakleet in 1983 and 1984 documenting a reported chinook salmon harvest of 1,868 and 1,650, respectively. These represent the largest catches on record and more than double the previous 5 year average catch (1978-1982). Approximately 80% of the 1983-84 harvest was taken from the Unalakleet River with the average fisherman reporting a harvest of about 25 chinook salmon. Again, during the 1985-1988 period, large concentrations of nets were observed in the lower mile of the Unalakleet River. The lack of accurate and complete historical chinook salmon escapement data for the Unalakleet drainage has made it difficult to judge what the effect of an increased catch will have on the reproductive potential of the stock. There is concern that the increasing subsistence harvest coupled with the commercial harvest may reduce escapement to such a degree that the reproductive potential of the stock may be damaged.

Also during the 1986 and 1987 seasons, nets apparently left untended were found to contain decomposing chinook salmon. For this reason, in addition to concern for the reproductive potential of this highly valued salmon species, the Alaska Board of Fisheries adopted several new regulations during their December 1987 meeting.

Commercial Fishery:

a. Provide for commercial gill net mesh size reduction during periods established by emergency order.

Sport Fishery:

a. Reduce the sport fishery bag and possession limit for chinook salmon in the Unalakleet River drainage to one salmon.

Subsistence Fishery:

a. Establish a fishing period for the Unalakleet subsistence salmon fishery of 8:00 a.m. Monday through 8:00 p.m. Saturday in the Unalakleet River with gill nets of no more than 25 fathoms, from June 1 - July 15.

It is intended, through the use of emergency order regulations, to allow the Department the flexibility to shift commercial fishing effort from chinook salmon to the smaller salmon species, by enacting a restriction in the mesh size of the commercial gear. If subsistence fishing effort remains high in the lower Unalakleet River in 1989, commercial fishing time will additionally be reduced so that adequate escapement can occur. As in 1987 and 1988, commercial fishing time may be restricted to 2 days per week if it appears adequate escapements are not occurring even with the use of mesh size restriction regulations. If commercial fishing time is restricted in the Unalakleet subdistrict it is possible fishermen will move north to the Shaktoolik subdistrict where fishing periods are longer. If this happens, fishing pressure will continue on Unalakleet bound fish traveling through the Shaktoolik subdistrict and will also increase on Shaktoolik stocks. Since neither of these results are desired, fishing time would also be reduced or staggered in the Shaktoolik subdistrict.

The reduction of sport bag and possession limits for the Unalakleet River was enacted by the Board in an attempt to reduce chinook salmon harvests and to allow for adequate escapement.

The new subsistence regulation which will provide a 36 hour period when no nets may be fished in the Unalakleet River during the chinook return is an effort to reduce wastage as well as improve escapement.

Table 1. Commercial salmon catches by species, Norton Sound District, 1961-1988.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1961	5,300	35	13,807	34,327	48,332	101,801
1962	7,286	18	9,156	33,187	182,784	232,431
1963	6,613	71	16,765	55,625	154,789	233,863
1964	2,018	126	98	13,567	148,862	164,671
1965	1,449	30	2,030	220	36,795	40,524
1966	1,553	14	5,755	12,778	80,245	100,345
1967	1,804	--	2,379	28,879	41,756	74,818
1968	1,045	--	6,885	71,179	45,300	124,499
1969	2,392	--	6,836	86,949	82,795	178,972
1970	1,853	--	4,423	64,908	107,034	178,218
1971	2,593	--	3,127	4,895	131,362	141,977
1972	2,938	--	454	45,182	100,920	149,494
1973	1,918	--	9,282	46,499	119,098	176,797
1974	2,951	--	2,092	148,519	162,267	315,829
1975	2,393	2	4,593	32,388	212,485	251,861
1976	2,243	11	6,934	87,916	95,956	193,060
1977	4,500	5	3,690	48,675	200,455	257,325
1978	9,819	12	7,335	325,503	189,279	531,948
1979	10,706	--	31,438	167,411	140,789	350,344
1980	6,311	40	29,842	227,352	180,792	444,337
1981	7,929	56	31,562	232,479	169,708	441,734
1982	5,892	10	91,690	230,281	183,335	511,208
1983	10,308	27	49,735	76,913	319,437	456,420
1984	8,455	6	67,875	119,381	146,442	342,159
1985	19,491	166	21,968	3,647	134,928	180,200
1986	6,303	233	35,600	41,260	146,912	230,308
1987	7,080	207	24,279	2,260	102,457	136,283
1988	4,096	1,252	37,247	74,604	107,967	225,166
5-Year Avg.1/	10,327	128	39,891	48,692	170,035	269,074
10-Year Avg.2/	9,229	76	39,132	142,649	171,408	362,494

1/ 1983-1987
2/ 1978-1987

Table 2. Norton Sound chum salmon escapement objectives. 1/

Subdistrict		Stream	Escapement Objective
(1)	Nome	Sinuk	4,500
		Nome	2,000
		Flambeau	3,250
		Eldorado	5,250
		Bonanza	1,500
(2)	Golovin	Fish	17,500
		Niukluk	8,000
		Boston	2,500
(3)	Moses Point	Kwiniuk 2/	25,000
		Tubutulik	12,000
(5)	Shaktoolik	Shaktoolik	11,000
(6)	Unalakleet	North River 2/	2,600

1/ Based on aerial survey counts which represent minimum escapement estimates unless otherwise noted.

2/ Based on tower counts.

Table 3. Nome Subdistrict / Port Clarence District subsistence permit limits.

Nome Subdistrict	
Nome River	250 Salmon/family (no more than 20 chum and 20 coho)
Snake River	100 Salmon/family (no more than 20 chum and 20 coho)
Sinuk River	100 Salmon/family
Solomon River	100 Salmon/family
Penny River	200 Salmon/family
Flambeau River	200 Salmon/family
Bonanza River	200 Salmon/family
Eldorado River	200 Salmon/family
Marine Waters	No catch limitations
Port Clarence District	
Pilgrim River	No sockeye/20 Salmon/family
Salmon Lake	No salmon/closed after 7/15
Kuzitrin River	No sockeye/100 Salmon/family
Above the confluence of the Pilgrim River	

NOTE: All waters of the Nome subdistrict are subject to weekly closures from June 15 to August 31. The Sinuk River is outside the Nome subdistrict boundary and, therefore, subsistence fishing can occur 7 days a week.

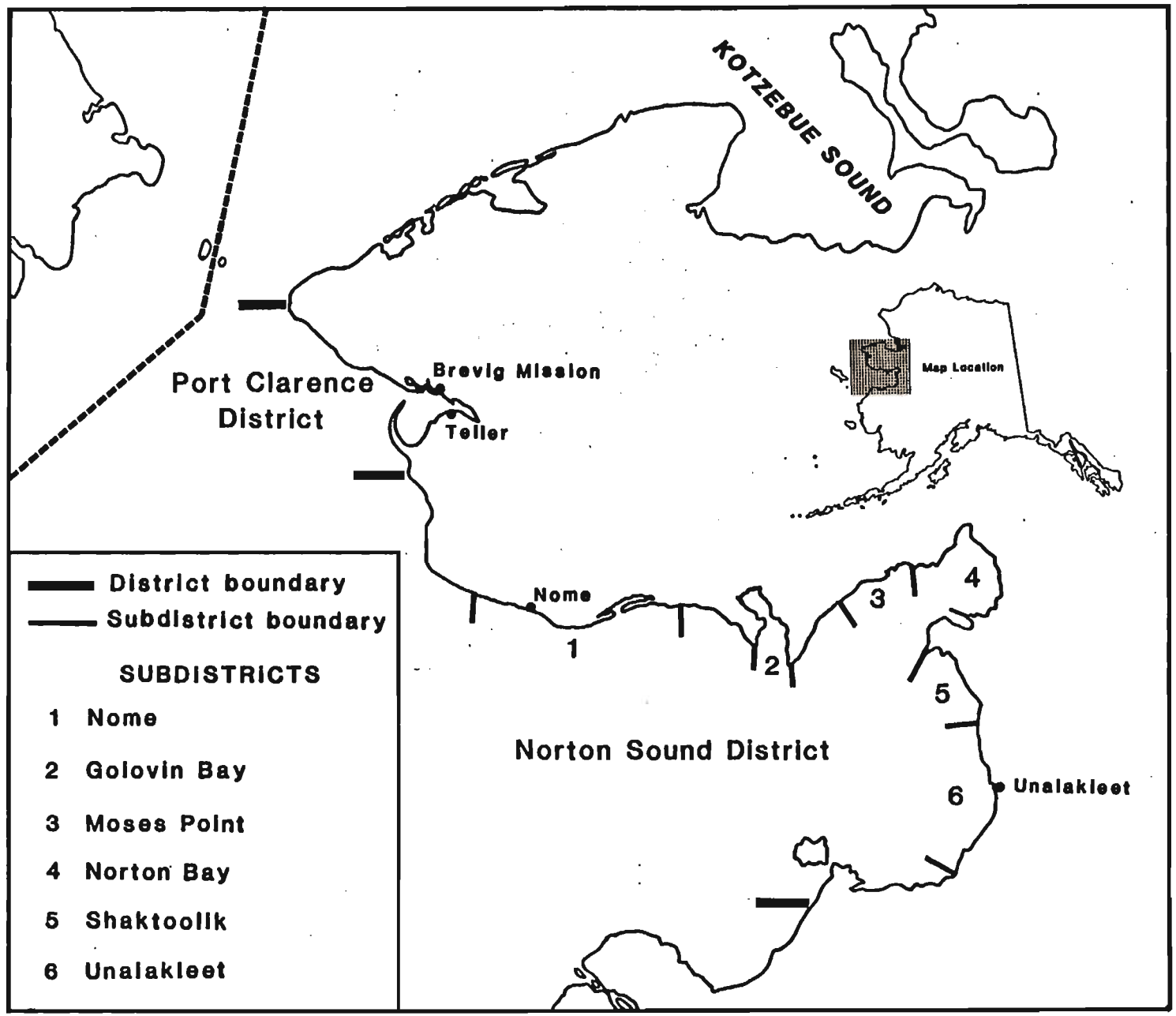

Figure . Norton Sound commercial salmon fishing subdistricts.

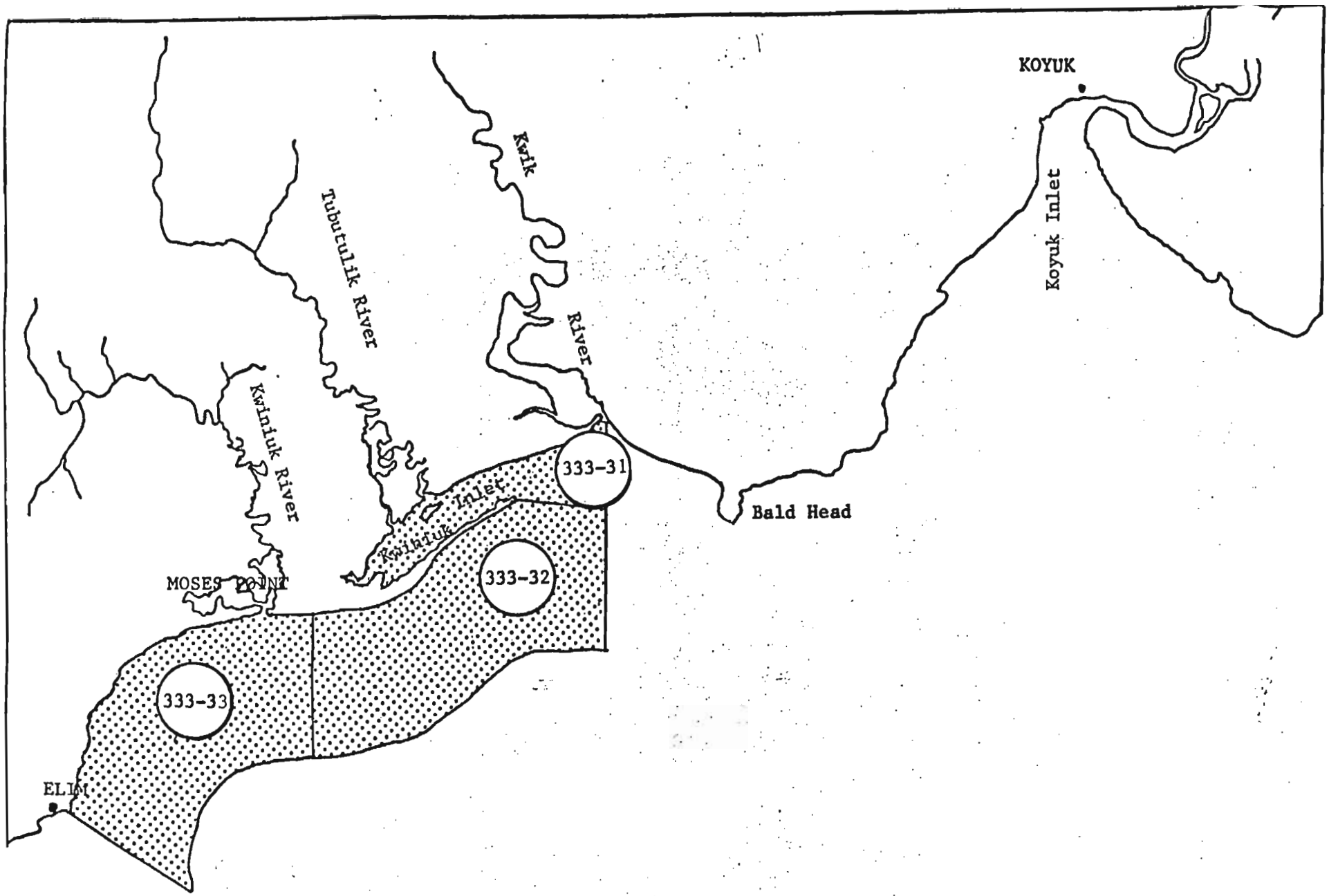

Figure . Statistical areas of the Moses Point commercial salmon fishing subdistrict, Norton Sound.